

Claims

1. An apparatus for automatically reducing noise from a work machine, comprising:

a location determining device for determining the location of the work machine within a work site;

a memory device for storing desired noise levels for each location within the work site; and

a control unit for (i) determining the location of the work machine from the location determining device, (ii) reading the desired noise level for the location from the memory device, (iii) placing the work machine in a normal mode of operation if the desired noise level exceeds a threshold noise level, and (iv) placing the work machine in a reduced noise mode of operation if the desired noise level falls below the threshold noise level.

2. The apparatus of claim 1, wherein the location determining device is a global positioning system.

3. The apparatus of claim 1, further comprising an engine which powers the work machine, wherein:

the engine is limited to a first speed in the normal mode of operation,

the engine is limited to a second speed in the reduced noise mode of operation, and

the second speed is less than the first speed.

4. The apparatus of claim 1, further comprising:

an engine driving a transmission input shaft; and

a transmission which selects a gear ratio, or ratio of the speed of an output shaft of the transmission to the speed of the input shaft of the transmission, wherein:

a first shift point between a first gear ratio and a second gear ratio is determined for the normal mode of operation,

a second shift point between a first gear ratio and a second gear ratio is determined for the reduced noise mode of operation, and

the second shift point occurs at a lower engine speed than the first shift point.

5. The apparatus of claim 1, wherein the desired noise level for each location within the work site varies with the time of day.

6. The apparatus of claim 5, wherein the desired noise level at night is less than the desired noise level during the day.

7. The apparatus of claim 1, wherein sound level meters are used to determine the desired sound level for each location.

9. A method for automatically reducing noise from a work machine having a location determining device for determining the location of the work machine within a work site, a memory device for storing desired noise levels for each location within the work site, and a control unit, comprising the steps of:

reading the desired noise level for the location from the memory device;

placing the work machine in a normal mode of operation if the desired noise level exceeds a threshold noise level; and

placing the work machine in a reduced noise mode of operation if the desired noise level falls below the threshold noise level.

10. The method of claim 9, further comprising the step of providing a global positioning system as the location determining device.

11. The method of claim 9, the work machine further having an engine which provides power, further comprising the steps of:

limiting the engine to a first speed in the normal mode of operation; and

limiting the engine to a second speed in the reduced noise mode of operation where the second speed is less than the first speed.

12. The method of claim 9, the work machine further having an engine driving an input shaft to a transmission which selects a number of gear ratios between the input shaft and an output shaft of the transmission, further comprising the steps of:

determining a first shift point between a first gear range and a second gear range for the normal mode of operation; and

determining a second shift point between a first gear range and a second gear range for the reduced noise mode of operation where the second shift point occurs at a lower engine speed than the first shift point.

13. The method of claim 9, further comprising the step of varying the desired noise levels for each location within the work site with the time of day.

14. The method of claim 13, further comprising the step of reducing the desired noise level at night.

providing sound level meters at each location; and

16. The method of claim 9, further comprising the step of transmitting the desired noise level for each location from a central control center to the memory device.